

# PATENT COOPERATION TREATY


## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

REC'D 07 APR 2005

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Applicant's or agent's file reference MJB07360WO		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/01376	International filing date (day/month/year) 28.03.2003	Priority date (day/month/year) 28.03.2003	
International Patent Classification (IPC) or both national classification and IPC B24B23/03			
Applicant THE TECHNOLOGY PARTNERSHIP PLC et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 1 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand  06.10.2004		Date of completion of this report  06.04.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Eder, R  Telephone No. +49 89 2399-7553	



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/GB 03/01376**

**i. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-4 as originally filed

**Claims, Numbers**

1-6 received on 06.10.2004 with letter of 05.10.2004

**Drawings, Sheets**

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-6
Inventive step (IS)	Yes: Claims	
	No: Claims	1-6
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: US-A-1 430 214 (WILLIAM D SAWYER) 26 September 1922 (1922-09-26)
- D2: EP-A-1 300 218 (TECHNOLOGY PARTNERSHIP) 9 April 2003 (2003-04-09)
- D3: US-A-2 759 305 (HELBIG JIM D) 21 August 1956 (1956-08-21)
- D4: DE 11 58 674 B (MAUZ & PFEIFFER) 5 December 1963 (1963-12-05)
- D5: DE 930 948 C (MUELLER BRUETSCH & CO ZUERICH) 28 July 1955 (1955-07-28)
- D6: CH 237 159 A (BUEHLER AG GEB) 15 April 1945 (1945-04-15).

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The document D1 discloses (the references in parentheses applying to this document):

a work tool comprising a principal drive shaft (3) with a sun gear (11) attached thereto; 4 planetary gears (9,12) distributed about the circumference of the sun gear at substantially equal angular separation (90°); and a carriage (7) for constraining the planetary gears (9,12) such that they maintain their angular separation about the axis of the principal drive shaft (3); wherein each planetary gear (9,12) has an eccentric axis (14) in addition to its rotational axis (8) constrained by the carriage (7), such that each planetary gear (9,12) can drive, in use, a platen (15) around the respective eccentric axis (14), and wherein the rotation of the eccentric axis [e.g. the lowermost eccentric axis (14)] of a first planetary gear [e.g. the uppermost planetary gear (9,12) of Figure 3] about its associated rotational axis (8) has a phase difference in a clockwise direction of 90° relative to the rotation of the eccentric axis [e.g. the rightmost eccentric axis (14)] of a second planetary gear [e.g. the rightmost planetary gear (9,12) of Figure 3] about its associated rotational axis (8), the second planetary gear (9,12) being adjacent to the first planetary gear (9,12) in a clockwise direction.

2. Furthermore, the present application does not involve an inventive step in the sense of Article 33(3) PCT when starting from document D3 as closest prior art.

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3. Dependent claims 2-6 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and inventive step in view of documents D3 and D4 and the passages of these documents cited in the search report.

**Annotation:**

Document D2 represents an earlier document with reference to this international application published on or after the international filing date.

## CLAIMS

1. A work tool comprising:  
a principal drive shaft with a sun gear attached thereto;  
5 n planetary gears distributed about the circumference of the sun gear at substantially equal angular separation; and  
a carriage for constraining the planetary gears such that they maintain their angular separation about the axis of the principal drive shaft; wherein  
each planetary gear has an eccentric axis in addition to its rotational axis  
10 constrained by the carriage, such that each planetary gear can drive, in use, a platen around the respective eccentric axis, and wherein  
the rotation of the eccentric axis of a first planetary gear about its associated rotational axis has a phase difference in a clockwise direction of  $2\pi/n$  relative to the rotation of the eccentric axis of a second planetary gear about its associated rotational  
15 axis, the second planetary gear being adjacent to the first planetary gear in a clockwise direction.
2. A work tool according to claim 1, wherein the principal drive shaft is connected to a motor.  
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3. A work tool according to either claim 1 or claim 2, wherein the platens can rotate freely.
4. A work tool according to either claim 1 or claim 2, wherein the platens are partially  
25 rotationally constrained.
5. A work tool according to any one of the preceding claims, arranged to be a polisher.
- 30 6. A work tool according to any one of claims 1 to 4, arranged to be a sander.